grade 7 Moth June 2

Diagnostic Test

Question 1.

Simplify.

$$2+\frac{40}{(-2)}-4(-3)$$

- **A**. -6
- **B.** -30
- **C**. -10
- **D.** -25

Question 2.

Convert the following fraction to a decimal.

13

- $A. 0.0\overline{3}$
- **R** 0.303
- $c. 0.\overline{3}$
- n 3.9

Question 3.

The original price of a ski jacket was \$210. It was on sale at a 25% discount. Arianna had a coupon for an additional 10% off the sale price.

What price did Arianna pay for the ski jacket?

- **A.** \$141.75
- **B.** \$136.50
- C. \$157.50
- **D.** \$147.50

Question 4.

Which equation could be used to find the total amount earned, T, for working h hours at d dollars per hour?

A.
$$T = \frac{h}{d}$$

$$R T = d + h$$

C.
$$T = \frac{d}{h}$$

$$D. \quad T = dh$$

Question 5.

Jorge deposited a check into his account for \$100.57. Then, he withdrew \$100.57 in cash in the same transaction. What is the net amount of Jorge's transaction?

- A. \$0
- B. \$100.57
- C. \$201.14
- D. -\$100.57

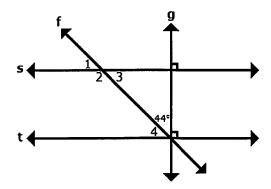
Question 6.

The base of a shipping drum is in the shape of a circle with a diameter of 30 inches. Which of the following is closest to the circumference of the base of the shipping drum? (Use 3.14 for π .)

- A. 94.2 inches
- **B.** 47.1 inches
- C. 188.4 inches
- D. 2,826 inches

Question 7.

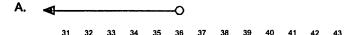
Parallel lines s and t are intersected by transversal lines f and g, as shown in the figure below. What is the measure of angle 1?

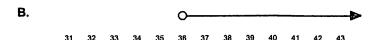


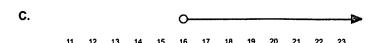
- A. 136°
- **B.** 46°
- C. 44°
- D. 134°

Question 8.

Jayden scored more than $\frac{2}{3}$ the number of points Kenneth scored. If Jayden scored 24 points, which inequality solution represents k, the number of points Kenneth could have scored?

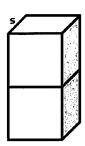






Question 9.

Abby stacked two cube-shaped blocks, as shown below, and plans to paint the figure for an art project.

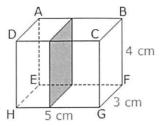


What is the surface area of the figure if s = 5 inches?

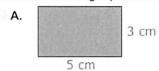
- A. 275 square inches
- B. 200 square inches
- C. 250 square inches
- D. 300 square inches

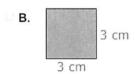
Question 10.

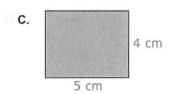
The rectangular prism below is intersected by a plane that is parallel to face BCGF, as shown.

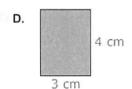


Which of the following represents this cross-section?









Question 11.

Emma spent \$38.22 on 3 dozen bagels and a gallon of iced tea. The price of the gallon of iced tea was 5.25. The following equation can be used to find d, the price of each dozen of bagels.

$$3d + 5.25 = 38.22$$

What was the price of each dozen of bagels?

- A. \$10.99
- B. \$7.49
- **C.** \$9.99
- **D.** \$12.74

Question 12.

Which two ordered pairs represent a proportional relationship?

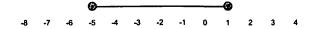
- **A.** (3, 1) and (6, 3)
- (4, 1) and (6, 2)
- (3, 1) and (6, 2)
- **D.** (5, 2) and (6, 2)

Question 13.

So far this season, Shawn has averaged 3 out of 11 free throws per game. Based on his previous performance, how many free throws can Shawn expect to make if he takes 22 free throws in his next game?

- **A.** 6
- В. 3
- **C**. 8
- **D.** 9

Question 14.



What is the length of the red line segment on the number line?

- A.
- **B**. -6
- **C**. 6
- D. -4

Question 15.

Jean drove 65 miles per hour for a total of 520 miles on a trip. She used the equation below to calculate the time, t, it would take her to complete the trip.

$$520 = 65t$$

What is the constant of proportionality in the equation?

- A. 65
- B. ŧ
- **D**. 520

Question 16.

Simplify the expression.

$$(5x + 8y) - (10x - 3y + 6)$$

- A. -5x + 5y 6
- B. -5x + 11y + 6
- c. -5x + 11y 6
- -5x + 5y + 6

Question 17.

The probability of randomly selecting a nickel from a bag of 50 coins is $\frac{25}{50}$. Which of the following describes the likelihood of selecting a nickel?

- A. neither unlikely nor likely
- B. likely
- C. unlikely

Question 18.

Which of these is an example of a random sample?

- A. Mrs. Baker selects the 10 students with the highest grade point averages to fill out a survey.
- **B.** Mrs. Baker selects the 10 students who arrived to class first on Monday to fill out a survey.
- **C.** Mrs. Baker selects the 10 students who raised their hands to volunteer to fill out a survey.
- **D.** Mrs. Baker selects the 10 students whose names are drawn from a bag to fill out a survey.

Question 19.

Jerome got in the elevator on the first floor of his office building. He went up 19 floors to his office. Then, Jerome took the stairwell down 2 floors for a morning meeting. After the morning meeting, he took the elevator down 8 floors for lunch in the cafeteria. Then, Jerome took the stairwell up 4 floors for an afternoon meeting. On which floor was his afternoon meeting?

- A. sixth
- B. fourteenth
- thirty-fourth
- D. eighteenth

Question 20.

Sinead bought 2 shirts for \$15.47 each and a pair of shoes for \$42.83. If she paid for the items with a \$100 bill, how much change did she receive?

- A. \$41.70
- **B.** \$10.76
- C. \$26.23
- **D.** \$73.77

Answers

- 1. A
- 2. C
- 3. A
- 4. D
- 5. A
- 6. A
- 7. B
- 8. A
- 9. C
- 10. D
- 11. A
- 12. C
- 13. A
- 14. C
- 15. A
- 16. C
- 17. A
- 18. D
- 19. B
- 20. C

Name	Date

Operations with Fractions

Solve the given word problems involving fractions.

1. Alex counted the total number of apples at the Dekalb County Farmer's Market to be 427. If $\frac{5}{7}$ of the apples were red, how many of the apples were not red?

2. Kamia had 6 and $\frac{2}{3}$ skeins of yarn to knit scarves for her friends. She needs $\frac{5}{8}$ of a skein of yarn to make one scarf. How many scarves will Kamia be able to knit?

3. What is the weight in ounces of a $3\frac{5}{7}$ inch by $8\frac{5}{9}$ inch rectangular sheet of metal if one square inch weighs $\frac{3}{4}$ ounce?

4. Elizabeth is stacking boxes in a warehouse. Each box is $27\frac{3}{8}$ inches high. The ceiling of the warehouse is 25 feet. The boxes must be in stacks that are no more than $\frac{4}{5}$ of the height of the ceiling. How many boxes can Elizabeth place in one stack?



Name	Date	

Operations with Fractions--KEY

Solve the given word problems involving fractions.

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122

2. Kamia had 6 and $\frac{2}{3}$ skeins of yarn to knit scarves for her friends. She needs $\frac{5}{8}$ of a skein of yarn to make one scarf. How many scarves will Kamia be able to knit?

10

3. What is the weight in ounces of a $3\frac{5}{7}$ inch by $8\frac{5}{9}$ inch rectangular sheet of metal if one square inch weighs $\frac{3}{4}$ ounce?

_____23 \(\frac{5}{6} \) ounces_____

4. Elizabeth is stacking boxes in a warehouse. Each box is $27\frac{3}{8}$ inches high. The ceiling of the warehouse is 25 feet. The boxes must be in stacks that are no more than $\frac{4}{5}$ of the height of the ceiling. How many boxes can Elizabeth place in one stack?



Your Classroom Partner

Solving Equations

Solve the equation.

1. x + 2 = 14

2. -5 = x - 4

3. x + 9 = 14

4. x - (-9) = -9

5. x + 8 = 7

6. 13 = 6 + x

7. 1 = 5 + x

8. x-3=-10

9. x - (-6) = -4

10. -12 = -9 + x

11. x + 9 + 15 = 18

12. 4x = 12

13. -32 = 16x

14. $\frac{x}{-4} = 5$

15. 5 = 20x

1.

2. ______

3.

4. _____

5.

6. _____

7. _____

8.

9. ______

10.

11. _____

12. _____

13. _____

14. _____

15. ______

Solving Equations

Solve the equation.

1.
$$x + 2 = 14$$

2.
$$-5 = x - 4$$

3.
$$x + 9 = 14$$

4.
$$x-(-9)=-9$$

5.
$$x + 8 = 7$$

6.
$$13 = 6 + x$$

7.
$$1 = 5 + x$$

8.
$$x-3=-10$$

9.
$$x - (-6) = -4$$

10.
$$-12 = -9 + x$$

11.
$$x + 9 + 15 = 18$$

14.
$$\frac{x}{-4} = 5$$

15.
$$5 = 20x$$

1.
$$x = 12$$

2.
$$x = -1$$

3.
$$x = 23$$

4.
$$x = -18$$

5.
$$x = -1$$

6.
$$x = 7$$

7.
$$x = -4$$

8.
$$x = -7$$

9.
$$x = -10$$

10.
$$x = -3$$

11.
$$x = -6$$

12.
$$x = 3$$

13.
$$x = -2$$

14.
$$x = -20$$

15.
$$x = \frac{1}{4}$$

Name	Date	

Mean, Median, Mode, and Range of Data

Find the mean, median, mode, and range of each data set. Then, tell which of those values best represents the data set. Justify your answer.

- 1. Video game scores: 575, 400, 885, 670, 575, 720, 1250
- 2. Math test scores: 97, 58, 89, 100, 92, 86, 84, 52

Find the mode of the data.

- 3. blue, yellow, red, blue, green, green, blue, purple, yellow, blue
- 4. 12, 15, 8, 9, 12, 15, 8, 12, 16

Tell whether the mean is a reasonable choice for the data set. Justify!

- 5. 13, 21, 15, 30, 26, 29; Mean: 30
- 6. 5, 11, 4, 3, 2, 14, 17; Mean: 4

Use the given mean to find the missing data value.

7. 18, 14, 24, 30



Mean, Median, or Mode?

pared to the mean.	3	r the median or the mode would	3
EMBANK:			
Data is qualitative (categorica	Data is skewed left or right.	Data takes on very few different values.	Data will be ranked.
There are suspected outliers.			
There are suspected outliers.			
	edian is better	Mode is better	
	edian is better	Mode is better	
	edian is better	Mode is better	
	edian is better	Mode is better	



Types of Data

cher:	Date:						
rections: Classify each example of data as qualitative (categorical) or quantitative (measurement).							
ITEMBANK:	1		,	0	•		,

Qualitative (Categorical)	Quantitative (Measurement)



Types of Data - Key

me:
me:

Class:

Teacher:

Date:

Directions: Classify each example of data as qualitative (categorical) or quantitative (measurement).

Qualitative (Categorical)

Quantitative (Measurement)

zip codes
favorite color
phone numbers

temperature
song length
cups of coffee sold
height
grade point average



Your Classroom Partner

Mean versus Median

ne: Class:			
eacher:	Date:		
irections: Based on the scata set.	enario determine if it would be better to use the mean or median to describe		
	ne the average salary of his workers. He has some workers that work part-time and some very highly true idea of the average salary, what summary statistic should he use?		
	e his average test grade in a class. All of his grades have been within five points of each other. He to calculate his overall grade. What summary statistic should he use?		
	e the average number of kids that the parents in her daycare group have. There are two families that at summary statistic should she use?		
	w that her class did really well on the last test. She has four students that should have been in honors regular math. What summary statistic should she use to defend her position?		
	tue baseball team claim that they are being underpaid, while the managers disagree. Keeping in mind salaries that are quite high, what summary statistics should the managers use to defend their		
	tue baseball team claim that they are being underpaid, while the managers disagree. Keeping in mind salaries that are quite high, what summary statistics should the players use to defend their argument?		
	g to show that they work too many hours. There are five part-time workers along with ten full time stic would best defend their position?		
Mean	Median		



Your Classroom Partner

Mean versus Median - Key

Name:		Class:
Teacher:	·	Date:

Directions: Based on the scenario determine if it would be better to use the mean or median to describe the data set.

Mean

The players of a minor league baseball team claim that they are being underpaid, while the managers disagree. Keeping in mind that a few top players earn salaries that are quite high, what summary statistics should the managers use to defend their argument?

Mrs. Smith is trying to show that her class did really well on the last test. She has four students that should have been in honors math, but instead stayed in regular math. What summary statistic should she use to defend her position?

Henry is trying to determine his average test grade in a class. All of his grades have been within five points of each other. He needs the average in order to calculate his overall

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Median

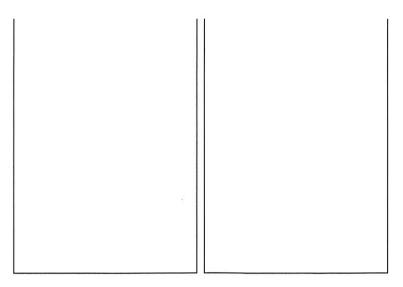
Workers at a plant are trying to show that they work too many hours. There are five part-time workers along with ten full time works. What summary statistic would best defend their position?

A CEO is trying to determine the average salary of his workers. He has some workers that work part-time and some very highly paid workers. If he wants a true idea of the average salary, what summary statistic should he use?

The players of a minor league baseball team claim that they are being underpaid, while the managers disagree. Keeping in mind that a few top players earn salaries that are quite

high what commany

grace. What summary	; Ingn, what summary
statistic should he use?	statistics should the
	players use to defend
The state of the s	their-argument?
	Hilary is trying to
	determine the average
	number of kids that the
	parents in her daycare
	group have. There are
	two families that have
	over 8 kids each. What
	summary statistic
	should she use?
	i l
	1





Solving Nonlinear Inequalities

Name: Teacher: Class: Date:

Directions: Solve the quadratic inequality. State the solution in interval notation.

1.
$$x^2 \ge 9$$

2.
$$x^2 - 3x - 18 \le 0$$

3.
$$x^2 > 3(x + 6)$$

4.
$$-2x^2 \le 4$$

5.
$$(x-2)(x-5) > 0$$

$$6. \frac{x-3}{x+1} \geq 0$$

7.
$$\frac{4}{y} \leq y$$

8.
$$x(x^2-4) \ge 0$$

9.
$$3x^2 - 3x < 2x^2 + 4$$

10.
$$x^2 < 4$$

Solving Nonlinear Inequalities KEY

- 1. $(-\infty, -3]$ U $[3, \infty)$
- 2. [-3, 6]
- 3. (-∞, -3) U (6, ∞)
- 4. (-∞, ∞)
- 5. $(-\infty, 2) \cup (5, \infty)$
- 6. (-∞, -1) U [3, ∞)
- 7. (-2, 0) U (2, ∞)
- 8. (-∞, ∞)
- 9. (-1, 4)
- 10. (-2, 2)

Two Step Equation Bingo

Name: Class: Teacher: Date:

Directions: This game is played by two teams. When a team rolls the dice, they go to a box that corresponds to what they rolled. For example, if they roll a 1 and a 3 they can go to box 1,3 or 3,1. If they roll a 6, they can pick a number 1-5! They must play until they get five boxes in a row solved (horizontally, vertically or diagonally). Team One will be X's and Team Two will be O's. If a question is answered incorrectly, the other team has the chance to "steal it." X's and O's should be put on the boxes for the class to see.

	1	2	3	4	5
1	4y - 6 = -18	-9 = -2y - 1	-3x + 6 = 12	10 = 3x - 5	-9 = 7 - x
	7 - 3y = 22	-10 = -4 + 2x	x - 14 = -19	10 = 4 - 2x	9 - 2x = 15
2	x + 13 = 20	2 = 5y - 8	7y - 4 = -11	8 - 3x = -13	4x + 3 = 19
3					
4	-x + 4 = 1	2x - 3 = 1	3x + 5 = 2	-7x + 12 = 19	x + 7 = -2
5	-14 = 6 - 4x	5x - 7 = -2	12 - 6y = 24	-4 = 6 - 2x	-3x + 19 = -11



Two Step Equation Bingo

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	1	2	3	4	5
1	4y - 6 = -18	-9 = -2y - 1	-3x + 6 = 12 -2	10 = 3x - 5	-9 = 7 - x 16
2	7 - 3y = 22 -5	-10 = -4 + 2x	x - 14 = -19	10 = 4 - 2x -3	9 - 2x = 15 -3
3	x + 13 = 20	2 = 5y - 8 2	7y - 4 = -11 -1	8 - 3x = -13	4x + 3 = 19 4
4	-x + 4 = 1 3	2x - 3 = 1 2	3x + 5 = 2	-7x + 12 = 19	x + 7 = -2
5	-14 = 6 - 4x 5	5x - 7 = -2	12 - 6y = 24 -2	-4 = 6 - 2x 5	-3x + 19 = -11



Mean, Median, Mode, and Range of Data KEY

Mean, Median, Mode, and Range of Data

Find the mean, median, mode, and range of each data set. Then, tell which of those values best represents the data set. Justify your answer.

1. Video game scores: 575, 400, 885, 670, 575, 720, 1250

Mean: 725 Median: 670 Mode: 575 Range: 850 The median best represents the data set because it is not too high or low.

2. Math test scores: 97, 58, 89, 100, 92, 86, 84, 52

Mean: 82.25 Median: 87.5 Mode: None Range: 48
The mean best represents the data set because it accounts for the lower as well as higher scores. The median is too high, and the range is too low.

Find the mode of the data.

- 3. blue, yellow, red, blue, green, green, blue, purple, yellow, blue blue
- 4. 12, 15, 8, 9, 12, 15, 8, 12, 16

Tell whether the mean is a reasonable choice for the data set. Justify!

5. 13, 21, 15, 30, 26, 29; Mean: 30 No, the highest data value is 30. So, 30 is too high for the mean.

6. 5, 11, 4, 3, 2, 14, 17; Mean: 4 No, 4 is too low for the mean. There are 4 data significantly greater than 4.

Use the given mean to find the missing data value.

7. 18, 14, 24, 30 Mean: 18 Missing data value: 4



Mean, Median, or Mode? - Key

Name:	Class:
Teacher:	Date:

Directions: Classify each data set according to whether the median or the mode would give a better picture of it, compared to the mean.

Median is better

Mode is better

Data is skewed left or

Data takes o

Data is skewed left or right.	Data takes on very few different values.
There are suspected outliers.	Data is qualitative (categorical).
Data will be ranked.	



Name	Date	
No the contraction of the second of		

Understanding Statistical Questions

Non-statistical Question: How old are you? (The answer does not vary!)

Statistical Question: How old are the students in your class? (The age of the students will probably vary!)

Is the question statistical? Write YES or NO.

- 1. How many oranges are in the refrigerator?
- 2. How many inches of rain fell each year in Los Angeles during the last five years?
- 3. How many students passed the math test in our class?
- 4. How many people bought tickets to the 8:00 p.m. performance?
- 5. How many trees were planted by each of the three cities on Arbor Day?
- 6. How many people wore purple shoes to the party?
- 7. How many students from each class registered for the team?
- 8. How many teams played in the tournament?
- 9. What were the scores from the five soccer games?
- 10. What is your student identification number?
- 11. How many doughnuts are in a dozen?
- 12. What are the heights of the players on your team?



Understanding Statistical Questions KEY

Understanding Statistical Questions

Non-statistical Question: How old are you? (The answer does not vary!)

Statistical Question: How old are the students in your class? (The age of the students will probably vary!)

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- 1. How many oranges are in the refrigerator? NO
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- 7. How many students from each class registered for the team? YES
- 8. How many teams played in the tournament? NO
- 9. What were the scores from the five soccer games? YES
- 10. What is your student identification number? NO
- 11. How many doughnuts are in a dozen? NO
- 12. What are the heights of the players on your team? YES



Nam	e Date
	Mean, Median, Mode, and Range
Find to	he mean, median, mode, and range for each set of data. Round to the nearest tenth when sary.
1.	32, 48, 22
	mean median mode range
2.	62, 35, 46, 35, 89
	mean median mode range
3.	25.2, 45.5, 61.7, 28.3
	mean median mode range
4.	124, 112, 110, 126, 98, 140, 124, 112, 112
	mean median mode range
5.	.06, 1.10, .75, 1.84, .05



mode

range

median

mean

Mean, Median, Mode, and Range KEY

(With Rounding to the nearest tenth)

Mean, Median, Mode, and Range

Find the mean, median, mode and range for each set of data. Round to the nearest tenth when necessary.

1. 32, 48, 22

mean 34 median 32 mode None range 26

2. 62, 35, 46, 35, 89

mean 53.4 median 46 mode 35 range 54

3. 25.2, 45.5, 61.7, 28.3

mean 40.2 median 36.9 mode None range 36.5

4. 124, 112, 110, 126, 98, 140, 124, 112, 112

mean 117.6 median 112 mode 112 range 42

5. **.06**, **1.10**, .75, **1.84**, .05

mean .76 median .75 mode None range 1.79



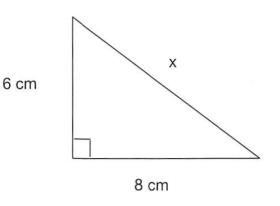
Your Classroom Partner

Middle School Math Review 3

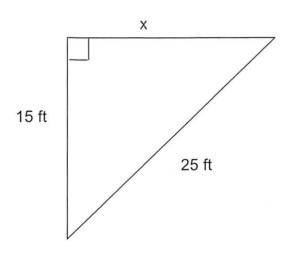
Name: Teacher: Class: Date:

Directions: Complete the exercises to review middle school math concepts.

1.) Find the missing side length.



2.) Find the missing side length.



- 3.) The radius of the Earth is approximately 6.37×10^6 . Which number below is equivalent to 6.37×10^6 .
 - a.) 637,000

c.) 6,370,000

b.) 63,700,000

d.) 637,000,000



4.) Xavier was writing a number using scientific notation, but he forgot to include the negative exponent that would correctly complete the expression. 3.46 x 10⁻

Which of the following would NOT be the number Xavier was writing?

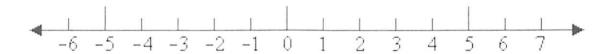
a.) 0.000346

c.) 0.00346

b.) 0.346

- d.) 34.6
- 5.) Place the given numbers in order from least to greatest.

- a.) -301, -31.5, -3, |-3|
- b.) -31.5, -3, |-3|, -301
- c.) -301, -31.5, -|-3|, 301,
- d.) -3, -31.5, -301, [-3]
- 6.) Label the following on the number line below: -0.5

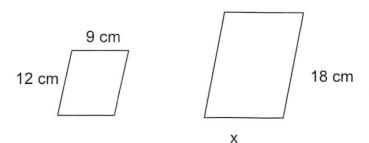


- 7.) On a certain day, 0.25 of an inch represents 3 miles. Two cities are 10.5 inches apart on the map. How far apart are they in reality?
 - a.) 31.5 miles

c.) 136 miles

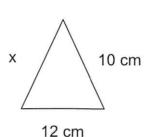
b.) 126 miles

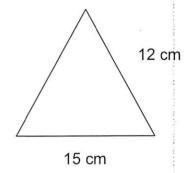
- d.) 0.07 miles
- 8.) The two figures below are similar .Find the length of x





- 9.) The two triangles are similar. Find the missing side length.
 - a.) 7 cm
 - b.) 8 cm
 - c.) 10 cm
 - d.) 18 cm





- 10.) It took 6 minutes to fill a 42-gallon tub with water. At that rate, how long will it take to fill a tub that holds 210 gallons?
 - a.) 5 minutes

- c.) 30 minutes
- b.) 12 minutes
- d.) 35 minutes
- 11.) The regular price on a personal CD player is \$50. Today, the CD player is on sale for 40% off the original price. What is the sale price now? Assume there is no sales tax.
- 12.) Collyn borrowed \$800 to buy a mountain bike. The rate of interest is 9% per year. If he borrowed it for 2 years, how much interest did he pay?
- 13.) Leslie was earning an income of \$1,000 per week. Then her income was reduced by 20%. Two months later, her income increases by 20%. How much is Leslie's earning, in dollars, after his income increases?
 - a.) \$960

c.) \$996

b.) \$1,000

- d.) \$1,200
- 14.) In the last several weeks the price of gas has increased from \$2.49 to \$2.65. Find the percent of increase to the nearest tenth
 - a.) 6.0%

c.) 6.4%

b.) 16%

- d.) 94%
- 15.) Solve the equation: 8x 6(x + 2) = 2



Middle School Math Review 3

Name: Teacher:

Class: Date:

Directions: Complete the exercises to review middle school math concepts.

- 1) x = 10 cm
- 2) x = 20 ft.
- 3) c.
- 4) d.
- 5) a.
- 6) dot close to -2
- 7) b.
- 8) 24 cm.
- 9) b.
- 10)c.
- 11)\$30
- 12)\$144
- 13)a.
- 14)a.
- 15)x = 7

